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EXAMINER

DAVIDSON, DAN

ART UNIT PAPER NUMBER

2651

DATE MAILED: 11/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/917,952

Applicant(s)

MAPLE ET AL.

Examiner

Dan I Davidson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-21 and 30-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8 and 11-14 is/are allowed.
- 6) ☒ Claim(s) 4, 6, 15-21 and 30-56 is/are rejected.
- 7) ☒ Claim(s) 3, 5, 7, 9, 10 and 49-53 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The amendment filed June 9, 2004 has been received and has been considered and made of record. An Office Action in response to the above amendment follows.
2. The Examiner acknowledges Applicant's cancellation of claims 1-2 and 22-29.

Claim Objections

3. Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of previous claim 6. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Compare claim 3 with claim 6, lines 13-16.
4. Claims 9 and 49-53 are objected to because of the following:
 - (1) In claim 9, line 1, "6" should be replaced with --7--.
 - (2) In claim 49, line 2, the limitations at claim 37 must be detailed in full if they are to be part of the claim.
 - (3) In claim 50, line 2, "the storage medium of claim 49" is not understood by the Examiner. Claim 49 is not drawn to a storage medium apparatus, rather to a method of reading.
 - (4) In claim 51, line 2, the limitations at claim 43 must be detailed in full if they are to be part of the claim.
 - (5) In claims 52 and 53, line 3, respectively, the method steps of claims 50 and 51, respectively, must be spelled out to be part of the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 30, 49-50 and 52 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Part (c) of each of claims 49 and 50 ("enabling reading of the resynchronization field") is not enabled by the specification. The specification teaches away from the claim limitation that the reading of the resynchronization field is read partly in response to a failure to detect the presence of the forward synchronization field (page 18, lines 29-32). As a result, an examination of claims 49-50 on the merits cannot be made. Claims 52 and 30 are respectively rejected since they are drawn to a compute readable medium that causes a processing unit to execute the methods of claims 50 and 49, respectively.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 31-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Re claims 31 and 36; the limitations at the last two paragraphs of each of the claims are completely unclear. The Examiner is unable to examine the claims. Claims 32-35 depend on claim 31 and are rejected accordingly.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 6, 37-38, 41-48, 51, and 53-56 are rejected under 35 U.S.C. 102(b) as being anticipated by Blaum et al (US 5,999,110 A).

Re claims 6, 37-38, 43, and 46; Blaum et al disclose a method of reading data written on a data-holding medium using a data reader (Fig. 2, 24), the data being arranged into a plurality of data items (for e.g. Fig. 3, 54) each including user data (Fig. 3, 62, 63) and non-user data, the non-user data including one or more synchronization fields (Fig. 3, 60-61, 65, 68; Applicant defines a synchronization field in the specification as a synchronized CQ (see Applicant's Fig. 8)), the method comprising: reading data from the data-holding medium (Fig. 2, 24); and detecting at least one synchronization field by processing the data (Fig. 3, 54; col. 2, lines 65-66; "synchronization mark" interspersed with data; note col. 5, lines 55-64 for further support), the processing including qualifying the detection of the synchronization field to tolerate one or more errors therein (col. 2, line 65, "error tolerant"), detection of the synchronization field (sync) being qualified by determining a sync pattern (Fig. 3, 61) formed by a part of the

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sync to be detected (col. 4, lines 66-67; if data can be read, the sync has been qualified), wherein detection of the sync pattern is qualified by determining that the sync pattern must be preceded by a predetermined pattern of data (Fig. 3, 60; col. 6, lines 30-32; for Sync pattern to be discriminated against forward VFO pattern, the VFO pattern must be detected), and enabling sync detection only in response to the predetermined pattern being detected (col. 6, lines 30-32), each data item including first and second codeword pairs forming two user data items (Fig. 3, 62-63), and a forward sync field positioned before the first codeword pair (Fig. 3, 61), a resync field positioned between the first and second codeword pairs (Fig. 3, 65), and a back sync field positioned after the second codeword pair (Fig. 3, 68), and detection of one of the forward sync fields or one of the back sync fields being qualified by determining that it must be preceded by a predetermined pattern of data (again col. 6, lines 30-32). Blaum et al further disclose a predetermined pattern of second non-user data positioned on the medium so the second non-user data follows the back synchronization field in the direction of forward reading (Fig. 3, VFO following the reverse sync).

Re claims 41-42, 44-45, and 47-48; Blaum et al disclose that the storage medium comprises an elongated tape, the fields and patterns of the plural data items being on a single track of the elongated tape (Fig. 2, 20; Fig. 3).

Re claim 51; Blaum et al disclose a method of reading a plurality of the plural data items on a storage medium, comprising the steps of: moving the medium in the forward direction (col. 4, line 23); while the medium is moving in the forward direction: enabling reading of the forward synchronization field of a first of the plural data items in

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response to detection of the presence of the predetermined pattern of the first non-user data (col. 4, lines 48-51); and reading at least one of the user data items of the first data item in response to detection of the read, enabled forward synchronization field of the first data item (col. 4, lines 66-67; Fig. 3, 62); and moving the medium in the backward direction (col. 5, lines 10-11); while the medium is moving in the backward direction: enabling reading of the back synchronization field of a third of the plural data items (Fig. 3, 68) in response to detection of the presence of the predetermined pattern of the second non-user data (Fig. 3, VFO after 68; col. 5, lines 11-14); and reading at least one of the user data items of the third data item in response to detection of the read, enabled back synchronization of the third data item (Fig. 3, 63).

Re claim 53; Blaum et al disclose a computer readable medium having stored therein instructions (see Fig. 1).

Re claims 54-56; Blaum et al disclose an apparatus with no structural limitations. See *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) (holding that an apparatus must be distinguished from the prior art in terms of structure rather than function).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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12. Claims 4 and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blaum et al (US 5,999,110 A) as applied to claim 6 above, and further in view of Malone, Sr. (US 5,940,233 A).

Re claim 6; Blaum et al disclose the limitations at this claim as discussed above.

Re claim 4; Blaum et al do not disclose accepting the detection of the predetermined pattern of data occurring at any point in the reading of the data and enabling sync detection. Malone, Sr. teaches this limitation (Fig. 4, 60).

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to accept the detection of a predetermined pattern of data (VFO field) during the reading of data to enable sync detection; motivation being more robust sync detection.

Re claims 15-19; Blaum et al do not disclose the limitations at these claims.

Re claims 15-17; Malone, Sr. teaches that sync pattern detection is qualified by using a window and considering as a true sync pattern any sync pattern detected while the window is open, and considering as a spurious sync pattern any sync pattern detected while the window is closed (col. 12, lines 8-16). By definition, a window is opened and closed at predetermined points. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to consider all sync patterns detected while the window is open as true and to consider all sync patterns detected while the window is closed as spurious; motivation being more robust sync detection.

Re claims 18-19; Malone, Sr. teaches that the point at which the window is opened and closed is configurable (col. 12, lines 34-36; "extending or regenerating"). It

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would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to configure the timing at which the window is opened and closed; motivation being better control over sync detection.

13. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blaum et al (US 5,999,110 A) in view of Malone, Sr. (US 5,940,233 A).

Re claims 20-21; Blaum et al disclose a method of reading data written on a data-holding medium using a data reader (Fig. 2, 24), the data being arranged into a plurality of data items (for e.g. Fig. 3, 54) each including user data (Fig. 3, 62, 63) and non-user data, the non-user data including one or more synchronization fields (Fig. 3, 60-61, 65, 68; Applicant defines a synchronization field in the specification as a synchronized CQ (see Fig. 8)), the method comprising: reading data from the data-holding medium (Fig. 2, 24); and detecting at least one synchronization field by processing the data (Fig. 3, 54; col. 2, lines 65-66; "synchronization mark" interspersed with data; note col. 5, lines 55-64 for further support), the processing including qualifying the detection of the synchronization field to tolerate one or more errors therein (col. 2, line 65, "error tolerant"), detection of the synchronization field (sync) being qualified by determining a sync pattern (Fig. 3, 61) formed by a part of the sync to be detected (col. 4, lines 66-67; if data can be read, the sync has been qualified), wherein each data item includes first and second codeword pairs forming user data items (Fig. 3, 62-63), a forward sync field positioned before the first codeword pair (Fig. 3, 61), a resync field positioned between the first and second codeword pairs (Fig. 3, 65), and a back sync positioned after the second codeword pair (Fig. 3, 68). Blaum et al further disclose that

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sync detection takes place when data is read from the data-holding medium before any further processing is carried out on the data (col. 4, lines 66-67).

Blaum et al do not disclose that the sync pattern detection is qualified by using a window and considering as a true sync pattern any sync pattern detected while the window is opened, and considering as a spurious sync pattern any sync pattern detected while the window is closed, and qualifying detection of a resync period using the window. Malone, Sr. teaches these limitations (col. 12, lines 8-16 and lines 34-38; see paragraph 12 for the analysis of claims 15-19). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to consider all sync patterns detected while the window is open as true and to consider all sync patterns detected while the window is closed as spurious, and to qualify detection of a resync period (period of SB2 in Malone, Sr.) using the window; motivation being more robust sync detection.

14. Claims 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blaum et al (US 5,999,110 A) as applied to claim 37 above, and further in view of Buckingham et al (US 6,640,326 B1).

Blaum et al disclose the limitations at claim 37 as discussed above. They further disclose a header between the forward synchronization field and the resynchronization field; and a header between the resynchronization field and the back synchronization field (Fig. 3, Codeword Header; col. 4, lines 32-35).

Blaum et al do not disclose that a header includes data identification and a parity field. Buckingham et al teach this feature (Fig. 5, 480-481, 488-489; C1 redundancy

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encoding information is parity information). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to have a header with data identification; motivation being reassembling a data set in a correct order after a read operation (Buckingham, col. 7, lines 25-26). Furthermore, it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to have a header with a parity field; motivation being to ensure that the header is correctly read (Buckingham, col. 7, lines 58-60).

Allowable Subject Matter

15. Claims 8, 11-13 and 14 are allowed over the prior art of record.

Re claim 8; the prior art of record, and in particular Malone, Sr. (US 5,940,233 A), fails to teach or suggest determining that the sync pattern has been detected by detecting at least one of the sync bytes, the sync bytes being configurable.

Re claim 11; the prior art of record, and in particular Malone, Sr. (US 5,940,233 A), fails to teach or suggest determining that the sync pattern has been detected by detecting at least one of the sync bytes, and detecting each sync byte using at least one mask register.

Re claim 14; the prior art of record, and in particular Blaum et al (US 5,999,110 A) and Malone, Sr. (US 5,940,233 A), fails to teach or suggest all the limitations present in this claim. Blaum et al fail to teach or suggest splitting the sync pattern into at least two sync bytes, determining that the sync pattern has been detected by detecting at least one of the sync bytes, and qualifying detection of any of the sync patterns by splitting the sync pattern into two or more sync bytes. Malone, Sr. fails to teach or

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suggest determining that the sync pattern has been detected by detecting at least one of the sync bytes, and a back sync field positioned after the second codeword pair.

16. Claims 5, 7, and 9-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Re claim 5; the prior art of record, and in particular Blaum et al (US 5,999,110 A), fails to teach or suggest that detection of the predetermined pattern of data allows no errors in the detection thereof to be tolerated.

Re claim 7; the prior art of record, and in particular the combination of Blaum et al (US 5,999,110 A) and Malone, Sr. (US 5,940,233 A), fails to teach or suggest that the sync pattern has been determined to be detected by detecting at least one of the sync bytes.

Re claim 10; the prior art of record, and in particular the combination of Blaum et al (US 5,999,110 A) and Malone, Sr. (US 5,940,233 A), fails to teach or suggest that the second sync byte comprises the remainder of the sync pattern.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ashley et al (US 5,969,649 A) teach a tape having a codeword quad pattern, and having a sync, a resync, and a backward sync.

D'Antonio et al (US 3,893,072 A) teach using a shift register in a sync pattern detector.

Hinz et al (US 4,835,628 A) teach designing bit synchronization fields as a redundant system, whereby the bit synchronization fields of other data sub-blocks can be used to establish or verify the bit synchronization field of the current data sub-block (col. 7, lines 3-7).

Saito et al (US 5,589,995 A) teach multiple sync patterns in the preamble of a data block.

Tanaka et al (US 4,862,295 A) teach having multiple sync patterns in the ID field of a data sector.

Hattori (US 5,847,890 A) teaches a specific data range sandwiched between two sync ranges to avoid misdetection of data due to a thermal asperity.

18. Since this Action contains new rejections not necessitated by amendment, this Action will not be final.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dan I Davidson whose telephone number is (703) 308-8535. The examiner can normally be reached on Mondays, Tuesdays, and Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran, can be reached on (703) 305-4040. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.


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DID

Dan I Davidson

November 16, 2004


Primary Examiner
for SPE S. Tran